REMARKS/ARGUMENTS

Upon entry of the foregoing amendment, claims 34, 35, 47, 48 and 51-66 are pending; with claims 34 and 47 being the independent claims. Claims 1-33, 36-46, 49 and 50 were previously canceled.

Based on the foregoing amendment and following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections Under 35 U.S.C. 103(a)

The Examiner has rejected claims 34-35, 47-48 and 51-66 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,504,898 to Kotler *et al.* ("Kotler") in view of U.S. Patent No. 4,852,138 to Bergeret *et al.* ("Bergeret") and U.S. patent No. 6,492,645 to Allen *et al.* ("Allen"). The Examiner asserts that Kotler teaches a method and apparatus for optimizing the irradiation of products that utilize moving plates into and out of the path of radiation to modify the shape of a radiation beam applied to a product. Kotler however fails to disclose employing a conveyor in the system that transports the product through the radiation beam. The Examiner relies upon Bergeret and Allen for disclosure of a conveyor system and asserts that "[i]t would have been well within the purview of one of ordinary skill in the art to substitute plural sources for irradiation and the conveyed system, as taught in Bergeret et al. and Allen et al., in the system of Kotler et al., because it would allow for the simultaneous treatment of a larger number of products, including those with non-uniform geometries, while maintaining the dose control functions with adjustable radiation."

The Examiner previously rejected claims 34, 35, 47 and 48 under 35 U.S.C. § 103 as being unpatentable over Kotler in view of Bergeret. In response to that rejection, the Applicants filed a response on May 5, 2006 and argued that Kotler teaches away from substituting a conveyor as described in Bergeret for the rotating turntable described. In response to that argument, the Examiner maintained "Kotler teaches the preferred use of a single source and rotating article, but does not teach that a conveyed system with multiple sources would not function with adjustable radiation." On the contrary, the purported results achieved in Kotler are dependant on the rotation of the articles and Applicants respectfully traverse the rejection accordingly.

An obviousness rejection requires consideration of whether it would have been obvious from a fair reading of the prior art reference as a whole to make the proposed modification and the proposed modification can not render the prior art unsatisfactory for its intended purpose. See *In re Gordon*, 221 U.S.P.Q. 1125 (1984); MPEP 2143.01(V). In *Gordan*, the U.S. Court of Appeals for the Federal Circuit ("Federal Circuit") reversed the Board's affirmation of an Examiner's rejection. The Examiner rejected claims to a blood filter under 35 U.S.C. § 103 as being unpatentable over a patent disclosing a gasoline filter. The Examiner asserted that the blood filter would have been obvious by inverting the gasoline filter. The Federal Circuit rejected the Board's affirmation because the gasoline filter relied upon gravity to assist in the separation of dirt and water from the gasoline. Based on the mode of operation of the gasoline filter, the Federal Circuit determined that inverting the device would have rendered the device inoperable because the gasoline to be filtered would have been trapped while the unwanted water would flow freely out of the outlet.

Similarly, modifying the teachings of Kotler by substituting a conveyor for the turntable would render Kotler inoperable for its intended purpose. Kotler describes various radiation scenarios and the resultant dose distribution in FIGS. 1(a)-1(f) and 2(a)-2(f). In FIGS. 1(a)-1(d) two scenarios are illustrated in which an article is irradiated from a single side. A person having ordinary skill in the art would recognize that those scenarios are equivalent to an article moving past a single radiation source on a conveyor system. In both scenarios, the dose of radiation received by the article reduces with distance from the radiation source.

FIG. 1(e) illustrates a scenario in which two sources of radiation are included on opposite sides of the article. Again, a person having ordinary skill in the art would recognize that the scenario is the same as if the article was moving on a conveyor past two radiation sources. With regard to the scenario with two radiation sources, Kotler teaches "two-sided irradiation still results in a relatively high [dose uniformity ratio] in the product stack," despite an improvement over one-sided irradiation. See Kotler col. 9, lines 59-61.

Kotler describes radiation scenarios including rotating articles in FIGS. 2(a)-2(f). FIGS. 2(a) and 2(b) illustrate a scenario in which the radiation beam is as wide as the article. FIGS. 2(c) and 2(d) illustrate a scenario in which the radiation beam is significantly narrower. Kotler recognizes that the dose distribution curves for the two scenarios are inverted and provide an opportunity for optimizing the process to achieve a relatively flat dose distribution. In particular, Kotler deduces that the inversion of the dose distribution curves shown in FIGS. 2(b) and 2(d) is a result of rotation because "the center of the product is always within the radiation beam, whereas volume elements such as those defined by points R1 and R2 (FIG. 2(c)) only spend a portion of time in the radiation beam." See Kotler col. 10, lines 16-21. Kotler teaches that alteration of the width of the radiation causes the dose distribution curve to invert that indicates

that there is an intermediate beam width that would provide a relatively uniform dose distribution. See Kotler col. 10, lines 32-37. Kotler utilizes an attenuator to provide that beam width. Kotler also discloses that a rectangular product stack may also be provided with a relatively uniform dose distribution by dynamically controlling the attenuation of the radiation beam as a function of the rotational position of the stack. See Kotler col. 11, lines 8-11; and 63-67. A person having ordinary skill in the art would recognize that applying attenuator to any of the scenarios provided in FIGS. 1 would not have the same effect because it would not provide a relatively even dose distribution as the scenarios utilizing at least one rotation of the product.

The Examiner asserts that Kotler "does not teach that a conveyed system with multiple sources would not function with adjustable radiation." However, such a broad teaching is not required. Kotler does teach that a conveyor system could not be substituted in the disclosed attenuator system to achieve the same result, i.e., a balanced radiation dose distribution.

Still further, although Kotler teaches a radiation attenuator formed from moving plates that is used to alter the shape of the radiation beam. The moving plates remain in the radiation path to maintain the shape of the radiation beam. Because the plates are utilized to shape the beam and not to reduce the intensity of the beam, they remain in the path and are never moved out of the path.

Bergeret also teaches away from a combination with Kotler. In particular, Bergeret teaches away from using a radiation attenuator to equalize a radiation dose distribution. In particular, Bergeret teaches a conveyor that is configured to move articles around radiation sources. Bergeret specifically distinguishes systems that irradiate palettes by circulating the palettes around a cylindrical source while the palettes are rotated because such systems require screens so that portions of the palettes (e.g., the corners) are not overexposed. See Bergeret col.

2, line 57 – col. 3, line 2; col. 3, lines 27-28. To avoid that result, Bergeret relies upon the configuration of the conveyor to equalize the radiation without using an attenuator as disclosed in Kotler. Therefore, a person having ordinary skill in the art would not have combined the teachings of Kotler and Bergeret to create the claimed invention.

Claim 34 recites a method of irradiating an article using a plurality of radiation sources disposed on opposite sides of a load transport member. The load transport member is configured to transport the article along a transport path past the plurality of radiation sources. The method includes positioning a radiation reducing member either into or out of a radiation path of the radiation sources based on a determination of cumulative radiation. As described above, a person having ordinary skill in the art would not have combined the teachings of Kotler with Bergeret and Allen. In addition, Kotler fails to teach a radiation reducing member moved out of a radiation path. Therefore, claim 34 is patentable over Kotler in view of Bergeret and Allen. Claims 35, 65 and 66 depend from and include the features of claim 34 and, for at least the same reasons, are patentable over Kotler in view of Bergeret and Allen.

Claim 47 recites a system for irradiating an article that includes a load transport member configured to transport a plurality of articles through the system in a transport path that extends past a radiation stream and a radiation reducing member that may be moved into or out of the radiation stream based on a determination of whether radiation of the article will be between a first limit and a second limit. As described above, a person having ordinary skill in the art would not have combined the teachings of Kotler with Bergeret and Allen. Moreover, Kotler fails to teach a radiation reducing member moved out of a radiation path. Therefore, claim 47 is patentable over Kotler in view of Bergeret and Allen. Claims 48 and 51-64 depend from and

include the features of claim 34 and, for at least the same reasons, are patentable over Kotler in view of Bergeret and Allen.

Conclusion

It is believed this amendment now has placed the application in condition for reconsideration and allowance. If necessary, the Commissioner is hereby authorized in this and concurrent replies to charge payment (or credit any overpayment) to Deposit Account No. 50-0683 of Luce, Forward, Hamilton & Scripps.

Respectfully submitted,

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